

**FAG**



## **HEATER40, HEATER150, HEATER300**

**Induction Heating Devices**  
**User manual**

**SCHAEFFLER**



## Foreword

The induction heating devices HEATER40, HEATER150 and HEATER300 give rapid, clean operation. Their high efficiency level allows energy-efficient heating and shorter heating times. This reduces the operating costs. The uniform, controlled heating allows consistently good quality of mounting.

Operation is simple and user-friendly, in addition to which the fitter does not need to remove his gloves. The touch keyboard is oil-resistant, dustproof and waterproof.

When heating by induction is used, there is no need at all to use oil – this gives particularly good environmental compatibility. The scope of application is very extensive. The heaters can be used to heat the loose inner rings of cylindrical or needle roller bearings as well as sealed and greased bearings. Compared with previous models, they show further improvements in performance capacity and safety.

In order to ensure durability in demanding industrial operation, the devices are extremely robust and reliable. This is also the reason that the warranty of 3 years can be extended to 5 years – free of charge!

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# HEATER40, HEATER150, HEATER300

## About the user manual

This user manual is part of the device and contains important information.

## Symbols

The warning and hazard symbols are defined in accordance with ANSI Z535.6-2006.



In case of non-compliance, death or serious injury will occur.◀

In case of non-compliance, death or serious injury may occur.◀

In case of non-compliance, damage or malfunctions in the product or the adjacent construction will occur.◀

## Sights

The warning, prohibition and instruction signs are defined in accordance with DIN 4884-2 and DIN EN ISO 7010.

## Warning, prohibition and instruction signs

Signs and descriptions	
	Warning of magnetic field
	Warning of non-ionising, electromagnetic radiation
	Warning of hot surface
	Prohibited for persons with heart pacemaker
	Prohibited for persons with metallic implants
	Carrying of metallic parts or watches prohibited
	Wear safety gloves
	Wear safety shoes

## Availability

This user manual is supplied with each device and can also be ordered retrospectively.

### **WARNING**

If the user manual is missing, incomplete or illegible, the user may make errors.

The Safety Officer must ensure that this user manual is always complete and legible and that any persons using the device have the user manual available. 

## Legal guidelines

The information in this manual corresponded to the most recent status at the close of editing. The illustrations and descriptions cannot be used as grounds for any claims relating to heating devices that have already been delivered.

Schaeffler Technologies AG & Co. KG accepts no liability for any damage or malfunctions if the device or accessories have been modified or used in an incorrect manner.

## Original user manual

The original user manual is taken to be a user manual in the German language. A user manual in another language is to be taken as a translation of the original user manual.

# HEATER40, HEATER150, HEATER300

<b>General safety guidelines</b>	It describes how the device may be used, who may use the device and what must be observed when using the device.
<b>Usage for the intended purpose</b>	Correct usage of the induction heating device is defined as the industrial heating of rolling bearings and other rotationally symmetrical, ferromagnetic workpieces. Sealed and greased rolling bearings can also be heated.
<b>Usage not for the intended purpose</b>	The heating device may not be used for the heating of parts that are not ferromagnetic or not rotationally symmetrical. Do not use the heating device in an environment with an risk of explosion. Usage not for the intended purpose can lead to the injury or death of persons or damage to the device.
<b>Qualified personnel</b>	For safety reasons, the heating device may only be operated by qualified personnel. A person defined as qualified personnel: <ul style="list-style-type: none"><li>■ has all the necessary knowledge</li><li>■ is aware of all the hazards and safety guidelines</li><li>■ is authorised to use the heating device by the safety co-ordinator</li><li>■ has fully read and understood this user manual.</li></ul>
<b>Working on electrical and electronic equipment</b>	Work on electrical and electronic devices may only be carried out by an electrically skilled person. An electrically skilled person is in a position, on the basis of his technical training, knowledge and experience as well as his knowledge of the appropriate regulations, to carry out work on electrical and electronic devices correctly and recognise possible hazards.

## Hazards

During operation, the device always generates an electromagnetic field. The electromagnetic field heats ferromagnetic parts and can be disrupt or destroy electronic components. Examples include watches, clocks, mobile telephones, credit cards and other data carriers as well as electronic circuits.



### DANGER

Danger of cardiac arrest in persons fitted with a pacemaker due to the strong electromagnetic field.

Ensure that persons fitted with a pacemaker remain outside the hazard area of the heating device, see section *Hazard area*, page 21.◀



### WARNING

Risk of burns due to heating of implants by the electromagnetic field. Ensure that persons with ferromagnetic implants remain outside the hazard area of the heating device, see section *Hazard area*, page 21.◀

## Safety equipment

In order to protect the user and the heating device, the following safety equipment is present:

- The temperatures of the cooling element, coil and housing are continuously monitored. The thermal protection system will switch off the heating device before any component is overheated. Once the thermal protection system has been triggered, the heating device can be put back into operation once the error has been eliminated and the device has been checked.
- The heating of the rolling bearing is continuously monitored. If the specified increase in temperature is not achieved within a certain period, the heating device is switched off by the software.

# HEATER40, HEATER150, HEATER300

**Operation** In order that the user can move out of the hazard area before the electromagnetic field is generated, the following operating options are available:

- The heating device can be operated by remote control. If remote control is activated in the menu, the user starts the heating process when he presses the START/STOP key on the heating device and then the key on the remote control. In this way, he can thus move out of the hazard area before the electromagnetic field is generated.
- If the remote control is not available, the user can set the heating device so that the electromagnetic field is not generated until several seconds have elapsed after pressing the START/STOP key. The user can then move out of the hazard area within the countdown time.

## **WARNING**

Risk of damage to health from remaining in a strong electromagnetic field, since the device starts the heating operation unexpectedly.

Avoid a countdown time setting = 0 seconds. ◀

## **Activity display**

During the heating operation, the ACTIVE LED is lit. The user can thus recognise when the electromagnetic field is being generated.

## **Protective equipment**

Personal protective equipment is intended to protect operating personnel against health hazards. This comprises safety shoes and heat-resistant gloves and these must be used in the interests of personal safety.

<b>Safety specifications</b>	The following safety specifications must be observed when working with the heating device. Further guidance on hazards and specific guidelines for action can be found, for example, in section <i>Operation</i> .
<b>Transport</b>	The hot heating device must not be moved directly after the heating process.
<b>Storage</b>	<p>The heating device must always be stored under the following ambient conditions:</p> <ul style="list-style-type: none"><li>■ humidity max. 90%, non-condensing</li><li>■ protected against sunlight and UV radiation</li><li>■ no explosion risk in the environment</li><li>■ no aggressive chemicals in the environment</li><li>■ temperature from –15 °C to +40 °C.</li></ul> <p>If the heating device is stored under unsuitable ambient conditions, this can have consequences such as damage to the electronic unit, corrosion of the ground contact surfaces and deformation of the plastic housing.</p>
<b>Commissioning</b>	<p>The heating device must not be modified.</p> <p>The heating device may only be commissioned if it fulfils the regulations to be adhered to at the place of use.</p> <p>Only original accessories and replacement parts may be used.</p> <p>The heating device may only be used in well ventilated rooms.</p> <p>Do not feed the mains connection cable through the U-shaped core.</p>

# HEATER40, HEATER150, HEATER300

<b>Operation</b>	<p>The heating device may only be operated under the following ambient conditions described:</p> <ul style="list-style-type: none"><li>■ closed room</li><li>■ subsurface flat and capable of supporting loads</li><li>■ humidity min. 5%, max. 90%, non-condensing</li><li>■ no explosion risk in the environment</li><li>■ no aggressive chemicals in the environment</li><li>■ temperature from 0 °C to +40 °C.</li></ul> <p>If the heating device is stored under unsuitable ambient conditions, this can have consequences such as damage to the electronic unit, corrosion of the ground contact surfaces and deformation of the plastic housing.</p> <p>The heating device may only be operated at the correct supply voltage.</p> <p>Rolling bearings must not be heated under the cover.</p> <p>A rolling bearing must not be heated if it is suspended from a metal cable.</p> <p>During the heating process, the user must maintain a distance of at least 2 m from the heating device.</p> <p>Objects made from ferromagnetic material must be kept at a distance of at least 1 m from the heating device.</p> <p>Correct seating of the support ledge/slewing ledge on the U-shaped core must be ensured, in order to prevent severe vibrations.</p> <p>The heating device may only be switched on if the support ledge/slewing ledge is correctly positioned.</p> <p>The support ledge/slewing ledge must never be removed during the heating process.</p> <p>Any smoke or vapour occurring during the heating process must not be inhaled.</p> <p>The heating device must be switched off using the main switch if it is not in use.</p>
<b>WARNING</b>	Back injuries due to incorrect handling of heavy rolling bearings. In the case of heavy rolling bearings, use suitable lifting gear. 
<b>Maintenance</b>	The heating device must be switched off before maintenance is carried out.
<b>Disposal</b>	Locally applicable regulations must be observed.
<b>Conversion</b>	The heating device must not be converted.

## Scope of delivery

The scope of delivery comprises the heating device, standard accessories and user manual, see *table* and *Figure 1, table*, page 12 and *Figure 2*, page 12 as well as *table*, page 13 and *Figure 3*, page 13.

### Scope of delivery Heating device HEATER40

Component	Designation	d <sup>1)</sup> mm
Heating device	<b>HEATER40</b>	–
Support ledge	<b>HEATER40.LEDGE-20</b>	20
Slewing ledge	<b>HEATER40.LEDGE-45</b>	45
	<b>HEATER40.LEDGE-70</b>	70
Temperature sensor	<b>HEATER.SENSOR-1000MM</b>	–
Remote control	<b>HEATER.REMOTE-CONTROL</b>	–
Grease, Arcanol MULTI3, 250 g	<b>ARCANOL-MULTI3-250G</b>	–
Insulating gloves, heat-resistant up to +200 °C	<b>GLOVE-PRO-TEMP</b>	–
Cover	<b>HEATER40.COVER</b>	–
User manual	–	–

1) Minimum inside diameter of rolling bearing.

- ① Heating device
- ② Slewing ledge 70
- ③ Temperature sensor, magnetic
- ④ Slewing ledge 45
- ⑤ Support ledge 20
- ⑥ Remote control
- ⑦ Grease
- ⑧ Gloves
- ⑨ Cover
- ⑩ User manual

*Figure 1*  
Scope of delivery  
Heating device HEATER40



# HEATER40, HEATER150, HEATER300

## Scope of delivery Heating device HEATER150

Component	Designation	d <sup>1)</sup> mm
Heating device	<b>HEATER150</b>	–
Slewing ledge	<b>HEATER150.LEDGE-45</b>	45
	<b>HEATER150.LEDGE-70</b>	70
	<b>HEATER150.LEDGE-100</b>	100
Temperature sensor	<b>HEATER.SENSOR-1000MM</b>	–
Remote control	<b>HEATER.REMOTE-CONTROL</b>	–
Grease, Arcanol MULTI3, 250 g	<b>ARCANOL-MULTI3-250G</b>	–
Insulating gloves, heat-resistant up to +200 °C	<b>GLOVE-PRO-TEMP</b>	–
Cover	<b>HEATER150.COVER</b>	–
User manual	–	–

1) Minimum inside diameter of rolling bearing.

- ① Heating device
- ② Slewing ledge 100
- ③ Temperature sensor, magnetic
- ④ Slewing ledge 70
- ⑤ Slewing ledge 45
- ⑥ Remote control
- ⑦ Grease
- ⑧ Gloves
- ⑨ Cover
- ⑩ User manual

*Figure 2*  
Scope of delivery  
Heating device HEATER150



**Scope of delivery**  
**Heating device HEATER300**

Component	Designation	d <sup>1)</sup> mm
Heating device	<b>HEATER300</b>	–
Slewing ledge	<b>HEATER300.LEDGE-60</b>	60
	<b>HEATER300.LEDGE-85</b>	85
	<b>HEATER300.LEDGE-115</b>	115
Temperature sensor	<b>HEATER.SENSOR-1000MM</b>	–
Remote control	<b>HEATER.REMOTE-CONTROL</b>	–
Grease, Arcanol MULTI3, 250 g	<b>ARCANOL-MULTI3-250G</b>	–
Insulating gloves, heat-resistant up to +200 °C	<b>GLOVE-PRO-TEMP</b>	–
Cover	<b>HEATER300.COVER</b>	–
User manual	–	–

<sup>1)</sup> Minimum inside diameter of rolling bearing.

- ① Heating device
- ② Slewing ledge 115
- ③ Temperature sensor, magnetic
- ④ Slewing ledge 85
- ⑤ Slewing ledge 60
- ⑥ Remote control
- ⑦ Grease
- ⑧ Gloves
- ⑨ Cover
- ⑩ User manual

**Figure 3**  
**Scope of delivery**  
**Heating device HEATER300**



### Accessories

The heating device is supplied with standard accessories.

Special accessories such as slewing ledges in other sizes are available, see section *Technical data and accessories*, page 54.

### Damage during transit

Any damage during transit must be reported as a complaint to the carrier.

### Defects

Any defects must be reported promptly to Schaeffler Technologies AG & Co. KG.

# HEATER40, HEATER150, HEATER300

## Description

The heating device is robust and is operated by means of a control panel and remote control.

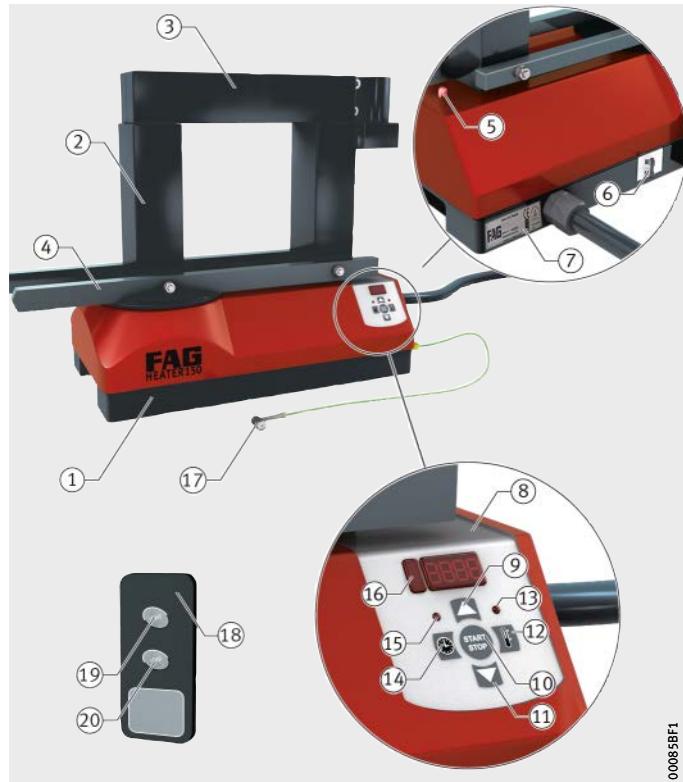
## Overview

The components are made from the most suitable material for the particular function, *Figure 4*.

- ① Housing of heating device
- ② U-shaped core
- ③ Slewing ledge
- ④ Support rail
- ⑤ ACTIVE LED
- ⑥ Main switch
- ⑦ Nameplate
- ⑧ Control panel
- ⑨ UP key
- ⑩ START/STOP key
- ⑪ DOWN key
- ⑫ TEMP key
- ⑬ TEMP LED
- ⑭ TIME key
- ⑮ TIME LED
- ⑯ Remote control receiver
- ⑰ Temperature sensor
- ⑱ Housing of remote control
- ⑲ Start key
- ⑳ Stop key

*Figure 4*  
Overview

Heating device and remote control



### Housing of heating device

It is made from polyurethane and encloses the electronic unit, parts of the U-shaped core and the primary coil.

### U-shaped core

This is made from steel and protrudes partially from the housing. In the housing, the primary coil is axially arranged symmetrically around the U-shaped core, *Figure 5*, page 16.

### Support ledge/slewing ledge

This is made from the same material as the U-shaped core. The support ledge is laid on the U-shaped core, while the slewing ledge is fitted on the locating stud and swivelled onto the U-shaped core.

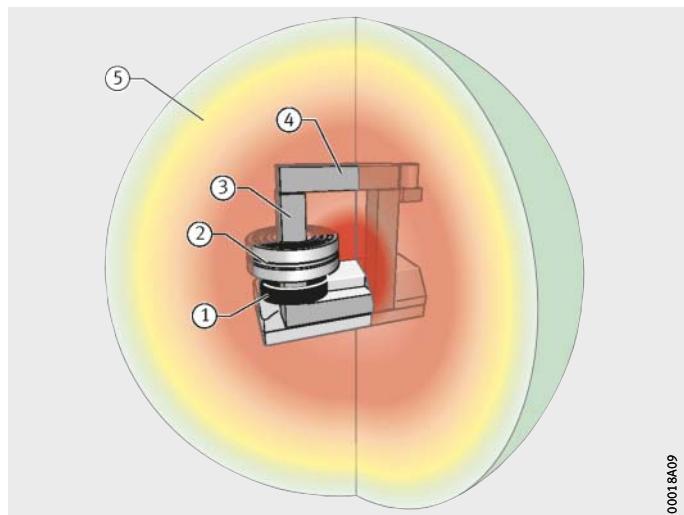
<b>Support rail</b>	These consist of heat-resistant plastic and prevent the rolling bearing to be heated from coming into contact with the housing.
<b>ACTIVE LED</b>	This LED lights as soon as the electromagnetic field is generated. In this way, the user can see when the device is active and observe the appropriate safe distance.
<b>Main switch</b>	This is used to switch the heating device on and off.
<b>Control panel</b>	The heating device is adjusted, started and stopped by means of the control panel integrated in the housing. The control panel has five keys. The operating mode is displayed by means of two LEDs. If both LEDs are lit, the operating mode is set to ramp control. Above the keys are the display and the receiver for the signal from the remote control.
<b>Temperature sensor</b>	This is magnetic, interchangeable and transmits the measured value to the temperature measuring unit located in the heating device.
<b>Housing of remote control</b>	The housing contains the circuit board, the emitter and the battery. If the battery is dead or the remote control is defective, the heating device can also be operated without remote control.

# HEATER40, HEATER150, HEATER300

<b>Function</b>	An induction heating device generates a strong electromagnetic field and can thus be used to heat a ferromagnetic workpiece. Due to heating, the workpiece expands, which makes mounting easier. A typical application is the heating of a rolling bearing. This manual therefore considers the heating of a rolling bearing.
<b>Functional principle</b>	<p>The primary coil generates an electromagnetic alternating field. This electromagnetic field is transmitted via the iron core to the secondary coil, for example a rolling bearing. In the secondary coil, a high induction current at low voltage is induced.</p> <p>The induction current causes rapid heating of the rolling bearing. Any parts that are not ferromagnetic, as well as the heating device itself, remain cold.</p> <p>When the heating device is switched on, an electromagnetic field is generated. The electromagnetic field is very strong directly at the heating device. The electromagnetic field becomes weaker with increasing distance from the heating device, <i>Figure 5</i>.</p>

- ① Primary coil
- ② Secondary coil, in this case a rolling bearing
- ③ U-shaped iron core
- ④ Slewing ledge
- ⑤ Electromagnetic field

*Figure 5*  
Function



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## Operating mode

The user sets which of the three operating modes the heating device should use.

## Temperature control

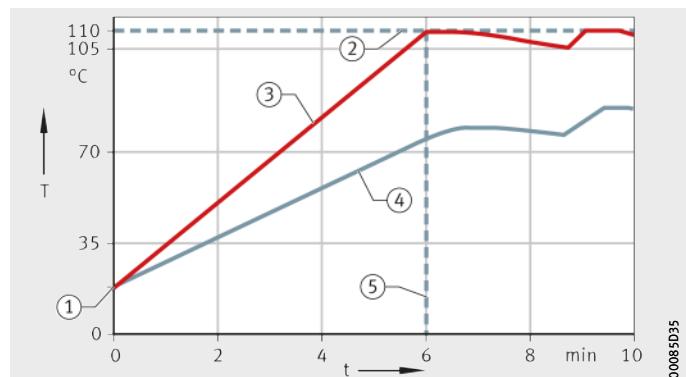
In the case of temperature control, the heating temperature is set, *Figure 6*.

The heating device indicates when the heating temperature is reached. If the heating device is not stopped using the remote control, the rolling bearing is brought to the preselected heating temperature up to five times.

Each time the heating temperature is reached, the heating device automatically starts the demagnetisation of the rolling bearing. After heating for the fifth time, demagnetisation is carried out for the last time and **done** will then appear in the display.

- ① Initial temperature
- ② Heating temperature
- ③ Temperature of inner ring
- ④ Temperature of outer ring
- ⑤ Heating time

*Figure 6*  
Temperature control



## Heating time

The heating time is the time taken until the heating temperature is reached. The heating time depends on the size of the rolling bearing and the cross-section of the support ledge/slewing ledge.

## HEATER40, HEATER150, HEATER300

### Time control

In the case of time control, the heating time is set, *Figure 7*.

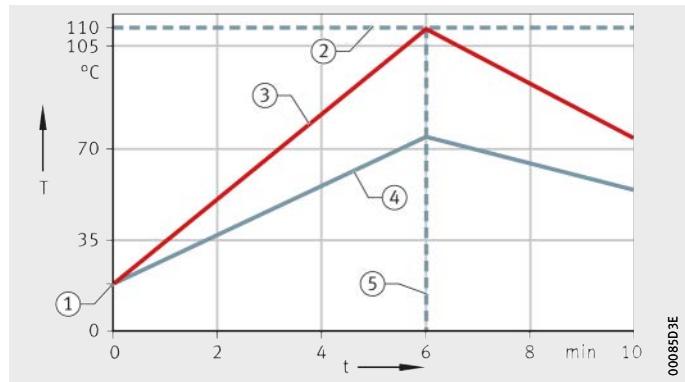
In order to determine the heating time for a rolling bearing, temperature control is used to heat the rolling bearing to the required temperature. The time required is noted as the heating time.

The advantage of time control compared to temperature control is that the temperature sensor is not necessary. Time control is therefore particularly suitable for the batch mounting of identical rolling bearings. When determining the heating time, it must be ensured that the initial temperature present is also maintained in the case of batch mounting.

Each time the heating temperature is reached, the heating device automatically starts the demagnetisation of the rolling bearing. After demagnetisation, *done* is shown in the display.

- ① Initial temperature
- ② Heating temperature
- ③ Temperature of inner ring
- ④ Temperature of outer ring
- ⑤ Heating time

*Figure 7*  
Time control



## Ramp control

In the case of ramp control, the heating temperature and heating time are set, *Figure 8*.

Ramp control is primarily suitable for rolling bearings with reduced internal clearance and very thick-walled workpieces.

The advantage compared to temperature control is that the rolling bearing can be heated more slowly. The controller checks the temperature continuously and regulates the power level.

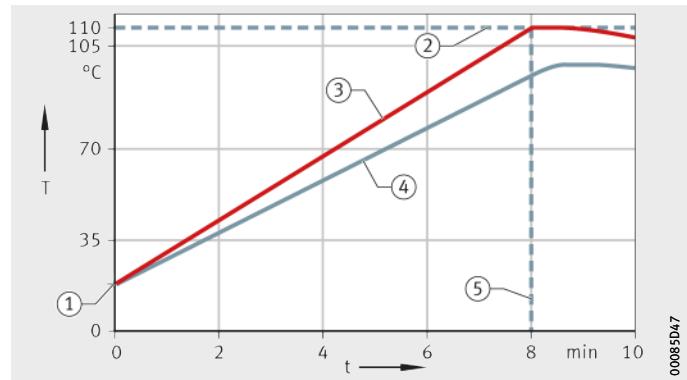
The temperature difference between the inner ring and outer ring remains small, preventing stress and damage to the raceway due to the indentation of the rolling elements.

The heating device indicates when the heating temperature is reached. If the heating device is not stopped using the remote control, the rolling bearing is brought to the preselected heating temperature up to five times.

Each time the heating temperature is reached, the heating device automatically starts the demagnetisation of the rolling bearing. After heating for the fifth time, demagnetisation is carried out for the last time and **dONE** will then appear in the display.

- ① Initial temperature
- ② Heating temperature
- ③ Temperature of inner ring
- ④ Temperature of outer ring
- ⑤ Heating time

*Figure 8*  
Ramp control



## Transport and storage

### Transport



The heating device cannot be carried by one person.

Injuries due to falling as a result of tripping when carrying the device due to hanging down of fixed mains connection cable.

Ensure that the mains connection cable is secured against hanging down for transport. ◀

### Storage



The heating device should be stored with protection against dust and UV radiation using the cover supplied.

Damage to or destruction of the cover due to contact with a hot heating device.

Only fit the cover to the heating device if the temperature of the heating device is less than +50 °C. ◀

## Commissioning

The heating device is commissioned at the fitting area.

### Hazard area

The hazard area of the heating device can represent a danger of death.

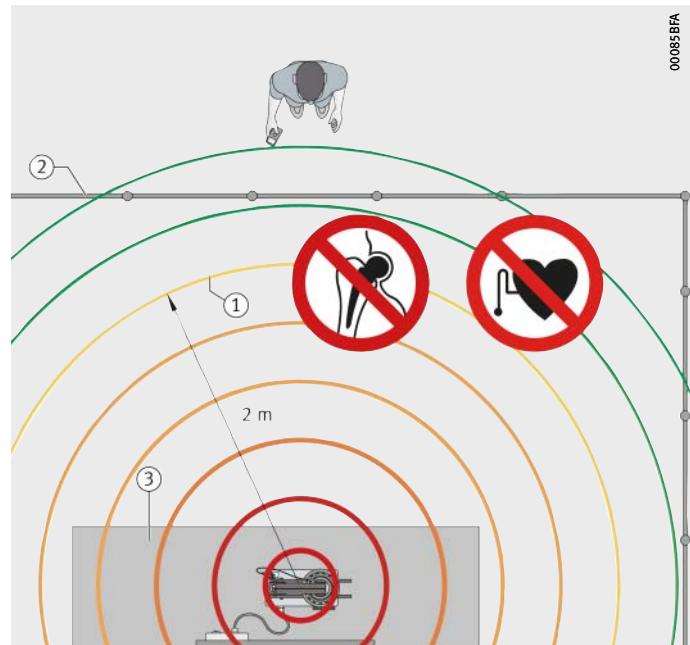


Danger of cardiac arrest in persons fitted with a pacemaker due to the strong electromagnetic field.

Ensure that persons fitted with a pacemaker remain outside the hazard area of the heating device. If necessary, put clearly visible signs or barriers in place, *Figure 9.*◀



Risk of burns due to heating of implants by the electromagnetic field. Ensure that persons with a ferromagnetic implant remain outside the hazard area of the heating device. If necessary, put clearly visible signs or barriers in place, *Figure 9.*◀



*Figure 9*  
Hazard area

# HEATER40, HEATER150, HEATER300

## Fitting area

A suitable fitting area has the following characteristics:

- flat and horizontal
- distance from ferromagnetic parts at least 1 m
- capable of supporting the total mass of the heating device and rolling bearing
- ergonomic working height for the fitter.

## Carrying out commissioning

Commissioning is carried out as follows:

- Remove packaging.
- Check the scope of delivery of the heating device.
- Place the heating device in a suitable fitting area.
- Check the heating device and mains connection cable for visible damage.

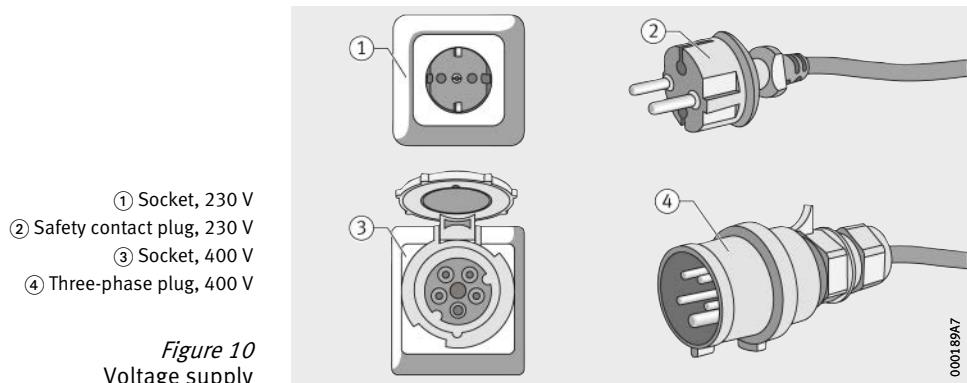
### ⚠ WARNING

Electrocution due to exposed wires as a result of melted cable sheathing.

Feed the mains connection cable around the U-shaped core. ◀

- Connect the heating device to the voltage supply, *Figure 10*. For specification of the voltage supply, see nameplate and *Figure 4*, page 14, and section *Technical data and accessories*, page 54.
- If necessary, connect a temperature sensor, see page 47.
- If necessary, start the configuration procedure in order to set the values for the heating operation, see section *Configuration*, page 23.

The parameters for the heating operation are set and the heating device is ready for use.



## Configuration

The heating device is supplied in a default configuration and is ready for immediate operation. The user can, however, configure the heating device at any time, see *table*. During configuration, the heating device is set to user mode.

### Overview of parameters

Parameter	Definition
U00	Set to default setting
U01	Change the default setting for the heating temperature
U02	Change the temperature differential
U03	Switch the buzzer on or off
U04	Change the temperature unit
U05	Change the countdown time
U06	Ramp control
U07	1)
U08	Remote control
U09	Calibrate the heating device
U10	Exit user mode

1) The parameter is displayed but should not be changed.

### Setting to default setting

The heating device can be restored to the default setting at any time. The default setting does not correspond to the setting at the time of delivery.

#### U00

Default setting:

- Sets all parameters to the default settings.
- Set all parameter settings to the default setting:
  - Switch off the heating device using the main switch.
  - Press the UP and DOWN keys simultaneously, hold the keys down and switch on the heating device using the main switch.
  - The heating device is in user mode and U00 is shown in the display.
  - Press the START/STOP key.
  - The display will show NO.
  - Press the UP key as often as necessary until YES is displayed.
  - Press the START/STOP key.
  - The new value will be stored and the display will show U00.
  - Press the UP key as often as necessary until U10 is displayed.
  - Press the START/STOP key.
- All the parameters with the exception of U05 and U08 will have the same settings as at the time of delivery.

## Changing the default setting for the heating temperature

The heating temperature is the temperature to which the rolling bearing is heated. If the operating mode of the heating device is temperature control, the heating temperature is shown in the display when it is switched on.

### U01

Heating temperature:

- +40 °C, 104 °F Minimum value
- +110 °C, 230 °F Default setting
- +240 °C, 464 °F Maximum value
- 1 Step size.

Change the default setting for the heating temperature:

- Switch off the heating device using the main switch.
- Press the UP and DOWN keys simultaneously, hold the keys down and switch on the heating device using the main switch.
- The heating device is in user mode and U00 is shown in the display.
- Press the UP key as often as necessary until U01 is displayed.
- Press the START/STOP key.
- The display will show the value for the parameter U01.
- Change the value using the UP or DOWN key.
- Press the START/STOP key.
- The new value will be saved and the display will show U01.
- Press the UP key as often as necessary until U10 is displayed.
- Press the START/STOP key.

The heating temperature has been changed.

**Example** When the heating device is delivered, it is set to a heating temperature of +110 °C. If a different heating temperature will always be required for the heating operation, the default setting for the heating temperature can be changed, *Figure 11*.

①	--	110
②	OFF I 0	
③	ON I 0	U00
④	▲	U01
⑤	START/STOP	110
⑥	10× ▼	100
⑦	START/STOP	U01
⑧	9× ▲	U10
⑨	START/STOP	100

① Heating device in standby mode  
 ② Switch off the heating device  
 ③ Switch on the heating device, user mode  
 ④ Default setting for heating temperature  
 ⑤ Activate setting  
 ⑥ Change heating temperature to +100 °C  
 ⑦ Store +100 °C  
 ⑧ Exit user mode  
 ⑨ Switch heating device to standby mode

*Figure 11*  
 Changing the default setting  
 for the heating temperature

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# HEATER40, HEATER150, HEATER300

## Changing the temperature differential

The temperature differential is the difference in temperature relative to the heating temperature at which the device restarts heating.

### U02

Temperature differential:

- 0 °C, 32 °F Minimum value
- +5 °C, 41 °F Default setting
- +50 °C, 122 °F Maximum value
- 1 Step size.

Change the temperature differential:

- ▶ Switch off the heating device using the main switch.
- ▶ Press the UP and DOWN keys simultaneously, hold the keys down and switch on the heating device using the main switch.
- ▷ The heating device is in user mode and U00 is shown in the display.
- ▶ Press the UP key as often as necessary until U02 is displayed.
- ▶ Press the START/STOP key.
- ▷ The display will show the value for the parameter U02.
- ▶ Change the value using the UP or DOWN key.
- ▶ Press the START/STOP key.
- ▷ The new value will be stored and the display will show U02.
- ▶ Press the UP key as often as necessary until U10 is displayed.
- ▶ Press the START/STOP key.

The temperature differential has been changed.

**Switching the buzzer on or off** If the buzzer is switched on, a buzzer tone will sound when the heating temperature is reached. After demagnetisation, a longer buzzer tone is emitted.

**U03** Buzzer:

- 0 Switched off
- 1 Switched on, default setting.

Switch the buzzer on or off:

- Switch off the heating device using the main switch.
- Press the UP and DOWN keys simultaneously, hold the keys down and switch on the heating device using the main switch.
- ▷ The heating device is in user mode and U00 is shown in the display.
- Press the UP key as often as necessary until U03 is displayed.
- Press the START/STOP key.
- ▷ The display will show the value for the parameter U03.
- Change the value using the UP or DOWN key.
- Press the START/STOP key.
- ▷ The new value will be stored and the display will show U03.
- Press the UP key as often as necessary until U10 is displayed.
- Press the START/STOP key.

The buzzer has been switched on or off.

## HEATER40, HEATER150, HEATER300

**Changing the temperature unit** The measured temperature is shown in the selected temperature unit in the display of the heating device.

### U04

Temperature unit:

- 0 Display in °C, default setting
- 1 Display in °F.

Change the temperature unit:

- Switch off the heating device using the main switch.
- Press the UP and DOWN keys simultaneously, hold the keys down and switch on the heating device using the main switch.
- The heating device is in user mode and U00 is shown in the display.
- Press the UP key as often as necessary until U04 is displayed.
- Press the START/STOP key.
- The display will show the value for the parameter U04.
- Change the value using the UP or DOWN key.
- Press the START/STOP key.
- The new value will be stored and the display will show U04.
- Press the UP key as often as necessary until U10 is displayed.
- Press the START/STOP key.

The temperature unit has been changed.

<b>Changing the countdown time</b>	In the appropriate setting, the heating device does not start the heating operation immediately after the START/STOP key is pressed. If remote control is switched on, the start key must be pressed within the countdown time in order to start the heating device. If remote control is switched off, the countdown time is the time that elapses between pressing the START/STOP key and the heating device starting.
<b>U05</b>	<p>Countdown time:</p> <ul style="list-style-type: none"> <li>■ 0 s Minimum value</li> <li>■ 5 s Default setting</li> <li>■ 30 s Delivered condition</li> <li>■ 99 s Maximum value</li> <li>■ 1 Step size.</li> </ul> <p>Change the countdown time:</p> <ul style="list-style-type: none"> <li>► Switch off the heating device using the main switch.</li> <li>► Press the UP and DOWN keys simultaneously, hold the keys down and switch on the heating device using the main switch.</li> <li>▷ The heating device is in user mode and U00 is shown in the display.</li> <li>► Press the UP key as often as necessary until U05 is displayed.</li> <li>► Press the START/STOP key.</li> <li>▷ The display will show the value for the parameter U05.</li> <li>► Change the value using the UP or DOWN key.</li> <li>► Press the START/STOP key.</li> <li>▷ The new value will be stored and the display will show U05.</li> <li>► Press the UP key as often as necessary until U10 is displayed.</li> <li>► Press the START/STOP key.</li> </ul> <p>The countdown time has been changed.</p>

## HEATER40, HEATER150, HEATER300

**Switching ramp control on or off** If ramp control is switched on, the rolling bearing is heated consistently. Temperature control and time control can only be switched on if this parameter is set to 0.

**U06**

Ramp control:

- 0 Switched off, default setting
- 1 Switched on.

Switch ramp control on or off:

- ▶ Switch off the heating device using the main switch.
- ▶ Press the UP and DOWN keys simultaneously, hold the keys down and switch on the heating device using the main switch.
- ▷ The heating device is in user mode and U00 is shown in the display.
- ▶ Press the UP key as often as necessary until U06 is displayed.
- ▶ Press the START/STOP key.
- ▷ The display will show the value for the parameter U06.
- ▶ Change the value using the UP or DOWN key.
- ▶ Press the START/STOP key.
- ▷ The new value will be stored and the display will read U06.
- ▶ Press the UP key as often as necessary until U10 is displayed.
- ▶ Press the START/STOP key.

Ramp control has been switched on or off.

<b>Inactive parameter</b>	In these heating devices, one parameter is inactive. When cycling through the parameters before exiting the setting mode, this parameter is displayed but must not be changed.
<b>U07</b>	<b>Ramp angle:</b> ■ This parameter is not active in the case of these heating devices.
<b>Switching remote control on or off</b>	If remote control is switched off, the device can only be operated using the keys on the control panel.
<b>U08</b>	<b>Remote control:</b> ■ 0 Switched off ■ 1 Switched on, default setting. <b>Switch remote control on or off:</b> ► Switch off the heating device using the main switch. ► Press the UP and DOWN keys simultaneously, hold the keys down and switch on the heating device using the main switch. ▷ The heating device is in user mode and U00 is shown in the display. ► Press the UP key as often as necessary until U08 is displayed. ► Press the START/STOP key. ▷ The display will show the value for the parameter U08. ► Change the value using the UP or DOWN key. ► Press the START/STOP key. ▷ The new value will be stored and the display will read U08. ► Press the UP key as often as necessary until U10 is displayed. ► Press the START/STOP key. Remote control has been switched on or off.

# HEATER40, HEATER150, HEATER300

<b>Calibrating the heating device</b>	The heating device can be calibrated at any time. If the temperature sensor is changed, the heating device must then be calibrated. The heating device should be calibrated annually.
<b>U09</b>	<p>Calibrate the heating device:</p> <ul style="list-style-type: none"><li>■ The temperature measuring unit is set, the heating device then displays the exact temperature.</li></ul> <p>Calibrate the heating device:</p> <ul style="list-style-type: none"><li>▶ Heat a rolling bearing by means of temperature control to +120 °C.</li><li>▶ Switch off the heating device using the main switch.</li><li>▶ Press the UP and DOWN keys simultaneously, hold the keys down and switch on the heating device using the main switch.</li><li>▷ The heating device is in user mode and U00 is shown in the display.</li><li>▶ Press the UP key as often as necessary until U09 is displayed.</li><li>▶ Press the START/STOP key.</li><li>▷ The temperature measured by the temperature sensor will be shown in the display.</li><li>▶ Measure the temperature of the rolling bearing directly next to the temperature sensor using a calibrated temperature gauge.</li><li>▶ Press the UP or DOWN key until the temperature displayed on the calibrated temperature measuring device is also shown in the display of the heating device.</li><li>▶ Press the START/STOP key.</li><li>▷ The new value will be stored and the display will show U09.</li><li>▶ Press the UP key as often as necessary until U10 is displayed.</li><li>▶ Press the START/STOP key.</li></ul> <p>The heating device has been calibrated.</p>
<b>Exit user mode</b>	At the end of the configuration process, the user mode is exited by selecting this menu item.
<b>U10</b>	<p>Exiting user mode:</p> <ul style="list-style-type: none"><li>■ The heating device is switched to standby mode.</li></ul>

**Operation**

It is recommended that only one rolling bearing should ever be heated at one time.

**Suitable rolling bearings**

Not all rolling bearings are suitable for these heating devices. The mass and dimensions must fulfil certain values, see *tables*.

**Rolling bearing suspended**

Designation	HEATER40	HEATER150	HEATER300
Mass, minimum	0,1 kg	10 kg	15 kg
Mass, maximum; slewing ledge open	8 kg	12 kg	20 kg
Mass, maximum; slewing ledge closed	40 kg	150 kg	300 kg
Inside diameter, minimum	20 mm <sup>1)</sup>	45 mm <sup>2)</sup>	60 mm <sup>3)</sup>
Outside diameter, maximum	410 mm	515 mm	740 mm

1) 15 mm when using a support ledge from the range of accessories.

2) 20 mm when using a support ledge from the range of accessories.

3) 30 mm when using a support ledge from the range of accessories.

**Rolling bearing lying flat**

Designation	HEATER40	HEATER150	HEATER300
Mass, minimum	0,1 kg	10 kg	15 kg
Mass, maximum	40 kg	150 kg	300 kg
Inside diameter, minimum	80 mm	110 mm	125 mm
Outside diameter, maximum	410 mm	515 mm	740 mm

## Remote control

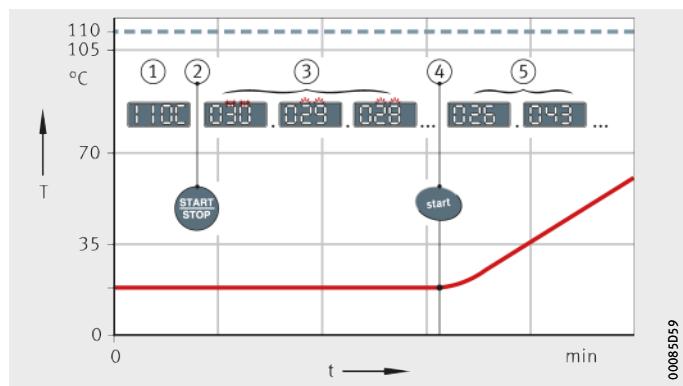
The remote control can be used to start the heating device from a safe distance. The remote control can be activated or deactivated, section *Configuration*, page 23. At the time of delivery, the remote control is switched on and the countdown time is set to 30 s. We recommend that the remote control should be left switched on and the countdown time should be left at 30 s.

### Remote control activated

After the START/STOP key (on the control panel) is pressed, the countdown time is counted down. If remote control is activated, the heating device will start within the countdown time immediately after pressing the start key (on the remote control), *Figure 12*. After heating, the temperature holding mode can be stopped at any time by pressing the stop key (on the remote control).

- ① Display of heating temperature
- ② START/STOP key (control panel)
- ③ Display of countdown time
- ④ Start key (remote control)
- ⑤ Display of current temperature

*Figure 12*  
Remote control activated



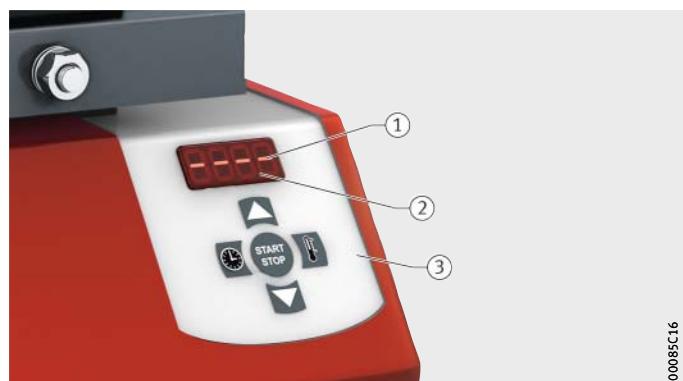
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### Standby mode

If remote control is activated and the start key (on the remote control) is not pressed within the countdown time, the heating device will switch to standby mode and the display on the control panel will show four dashes, *Figure 13*. After the START/STOP key (on the control panel) is pressed again, the countdown time is counted down once more.

- ① Display: start key was not pressed
- ② Display
- ③ Control panel

*Figure 13*  
Countdown time expired



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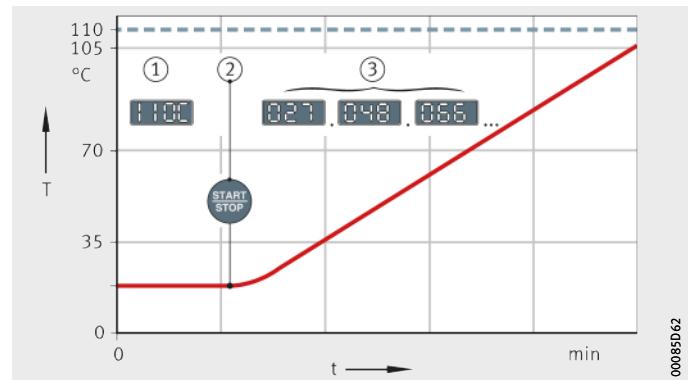
### Remote control deactivated

If remote control is deactivated, the heating device is started using the control panel:

- If the countdown time = 0 s the heating device will start immediately after pressing the START/STOP key, *Figure 14*. With this setting, the user will be in the hazard area when the electromagnetic field is generated. This setting should be avoided.
- If the countdown time > 0 s the heating device will start once the countdown time has expired after pressing the START/STOP key, *Figure 15*.

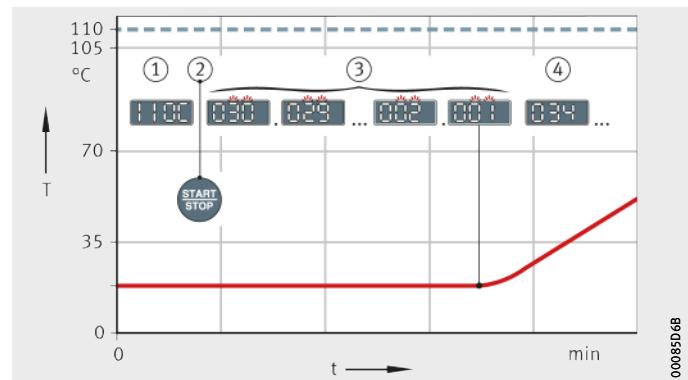
① Display of heating temperature  
② START/STOP key  
③ Display of current temperature

*Figure 14*  
Countdown time = 0 s



① Display of heating temperature  
② START/STOP key  
③ Display of countdown time  
④ Display of current temperature

*Figure 15*  
Countdown time > 0 s



## HEATER40, HEATER150, HEATER300

### Teaching the remote control

After the button cell (CR 2035) has been changed, the heating device will often not respond immediately to signals from the remote control. The remote control must then be taught, *Figure 16*.

- Commission the heating device.
- Press the START/STOP key.
- Point the remote control at the control panel.
- Press the start key as often as necessary within the countdown time until the ACTIVE LED on the heating device lights.

► The remote control has been taught.

- ① Heating device
- ② Control panel
- ③ START/STOP key
- ④ ACTIVE LED
- ⑤ Remote control
- ⑥ Start key

*Figure 16*  
Teaching the remote control



## Temperature holding mode

This function of the heating device is only active in the control modes:

- temperature control
- ramp control.

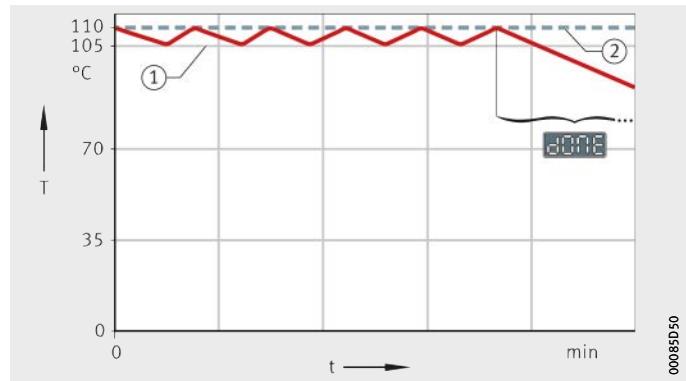
Once the heating temperature is achieved, the heating device demagnetises the rolling bearing. If the temperature of the rolling bearing falls below the limit temperature, the heating device will again heat the rolling bearing to the heating temperature. During this time, the temperature of the rolling bearing will flash in the display.

After the fifth heating cycle, the temperature holding mode will be stopped, the display will show dONE and the rolling bearing will cool down again, *Figure 17*.

The temperature holding mode can be stopped at any time by pressing the stop key.

① Heating temperature  
② Limit temperature

*Figure 17*  
Temperature holding mode



# HEATER40, HEATER150, HEATER300

## Heating of rolling bearings

The heating operation can be controlled by means of:

- temperature control
- time control
- ramp control.

### Temperature control

For temperature control, the following conditions apply:

- The maximum heating temperature for standard rolling bearings is +120 °C.

The heating operation is divided into the four subsections of preparation, setting, heating and removal.

### Preparation

- ▶ Check whether the rolling bearing can be heated, see section *Suitable rolling bearings*, page 33.

#### DANGER

Strong electromagnetic field. Cardiac arrest due to failure of the pacemaker.

Avoid the hazard area, see section *Hazard area*, page 21. ◀

- ▶ Switch off the heating device using the main switch.
- ▶ Position the rolling bearing on the heating device so that it is not in direct contact with the housing of the heating device, see section *Positioning of rolling bearings*, page 45.
- ▶ Attach the temperature sensor in the vicinity of the inside diameter, in the case of rolling bearings to the end face of the inner ring that is free from grease and oil, see page 47.

### Setting

- ▶ Switch on the heating device using the main switch.
- ▶ Press the TEMP key.
- ▶ The TEMP LED will light and the preset heating temperature will appear on the display.
- ▶ Set the required heating temperature using the UP or DOWN key.

<b>Heating</b>	<ul style="list-style-type: none"><li>▶ Press the START/STOP key.</li><li>▷ The countdown time is counted down.</li><li>▶ Move out of the hazard area and observe the safe distance while the heating device is heating the rolling bearing.</li><li>▶ If remote control is activated, press the start key within the countdown time. If remote control is deactivated, wait for the end of the countdown time.</li><li>▷ The ACTIVE LED will light red, the electromagnetic field will be generated and the heating operation will start.</li><li>▶ Wait until a longer buzzer tone is emitted and the temperature of the rolling bearing is displayed.</li><li>▶ If remote control is switched on, press the stop key in order to end the temperature holding mode. If remote control is switched off, wait until the temperature holding mode ends automatically.</li></ul>
<b>Removal</b>	<ul style="list-style-type: none"><li>▶ From a safe distance, press the stop key and check whether the heating temperature is shown in the display. If remote control is switched off, check from a safe distance whether dONE is shown in the display.</li><li>▶ Remove the temperature sensor, see page 48.</li></ul> <p><b>⚠ WARNING</b></p> <p>Hot rolling bearing. Serious burns.</p> <p>Wear heat-insulating gloves. ◀</p> <ul style="list-style-type: none"><li>▶ Remove the rolling bearing from the heating device, see section <i>Removal of rolling bearings</i>, page 49.</li><li>▶ Lay the rolling bearing on the work surface.</li></ul> <p>The heated rolling bearing can now be mounted.</p>

# HEATER40, HEATER150, HEATER300

**Time control** For time control, the following conditions apply:

- The longest heating time is 99 min 59 s.

The heating operation is divided into the four subsections of preparation, setting, heating and removal.

**Preparation**

- ▶ Check whether the rolling bearing can be heated, see section *Suitable rolling bearings*, page 33.

**DANGER**

Strong electromagnetic field. Cardiac arrest due to failure of the pacemaker.

Avoid the hazard area, see section *Hazard area*, page 21.◀

- ▶ Switch off the heating device using the main switch.
- ▶ Position the rolling bearing on the heating device so that it is not in direct contact with the housing of the heating device, see section *Positioning of rolling bearings*, page 45.

**Setting**

- ▶ Switch on the heating device using the main switch.
- ▶ Press the TIME key.
- ▷ The TIME LED will light and 00:00 will appear on the display.
- ▶ Set the required heating temperature (in minutes) using the UP or DOWN key.
- ▶ Press the TIME key.
- ▶ Set the required heating temperature (in seconds) using the UP or DOWN key.

**Heating**

- ▶ Press the START/STOP key.
- ▷ The countdown time is counted down.
- ▶ Move out of the hazard area and observe the safe distance while the heating device is heating the rolling bearing.
- ▶ If remote control is activated, press the start key within the countdown time. If remote control is deactivated, wait for the end of the countdown time.
- ▷ The ACTIVE LED will light red, the electromagnetic field will be generated and the heating operation will start.

**Removal** ► From a safe distance, check whether dONE is shown in the display.

**⚠ WARNING**

Hot rolling bearing. Serious burns.

Wear heat-insulating gloves. ◀

► Remove the rolling bearing from the heating device,  
see section *Removal of rolling bearings*, page 49.

► Lay the rolling bearing on the work surface.

The heated rolling bearing can now be mounted.

# HEATER40, HEATER150, HEATER300

<b>Ramp control</b>	For ramp control, the following conditions apply: <ul style="list-style-type: none"><li>■ The shortest heating time is 5 min.</li><li>■ The smallest workpiece mass is 2 kg.</li></ul> The heating operation is divided into the four subsections of preparation, setting, heating and removal.
<b>Preparation</b>	<p>Heating of rolling bearings:</p> <ul style="list-style-type: none"><li>► Check whether the rolling bearing can be heated, see section <i>Suitable rolling bearings</i>, page 33.</li></ul> <p><b>DANGER</b></p> <p>Strong electromagnetic field. Cardiac arrest due to failure of the pacemaker.</p> <p>Avoid the hazard area, see section <i>Hazard area</i>, page 21. ◀</p> <ul style="list-style-type: none"><li>► Switch off the heating device using the main switch.</li><li>► Position the rolling bearing on the heating device so that it is not in direct contact with the housing of the heating device, see section <i>Positioning of rolling bearings</i>, page 45.</li><li>► Attach the temperature sensor in the vicinity of the inside diameter, in the case of rolling bearings to the end face of the inner ring that is free from grease and oil, see page 47.</li></ul>
<b>Setting</b>	<ul style="list-style-type: none"><li>► Switch on the heating device using the main switch.</li><li>► Press the TEMP key and TIME key simultaneously.</li><li>► The TEMP LED and TIME LED will light.</li><li>► Press the TEMP key.</li><li>► Set the required heating temperature using the UP or DOWN key.</li><li>► Press the TIME key.</li><li>► Set the required heating time (in minutes) using the UP or DOWN key.</li><li>► Press the TIME key.</li><li>► Set the required heating time (in seconds) using the UP or DOWN key.</li></ul>

<b>Heating</b>	<ul style="list-style-type: none"><li>▶ Press the START/STOP key.</li><li>▷ The countdown time is counted down.</li><li>▶ Move out of the hazard area and observe the safe distance while the heating device is heating the rolling bearing.</li><li>▶ If remote control is activated, press the start key within the countdown time. If remote control is deactivated, wait for the end of the countdown time.</li><li>▷ The ACTIVE LED will light red, the electromagnetic field will be generated and the heating operation will start.</li><li>▶ Wait until a longer buzzer tone is emitted and the temperature of the rolling bearing is displayed.</li><li>▶ If remote control is switched on, press the stop key in order to end the temperature holding mode. If remote control is switched off, wait until the temperature holding mode ends automatically.</li></ul>
<b>Removal</b>	<ul style="list-style-type: none"><li>▶ From a safe distance, press the stop key and check whether the heating temperature is shown in the display. If remote control is switched off, check from a safe distance whether dONE is shown in the display.</li><li>▶ Remove the temperature sensor, see page 48.</li></ul>

**⚠ WARNING**

Hot rolling bearing. Serious burns.

Wear heat-insulating gloves. 

- ▶ Remove the rolling bearing from the heating device, see section *Removal of rolling bearings*, page 49.
- ▶ Lay the rolling bearing on the work surface.

The heated rolling bearing can now be mounted.

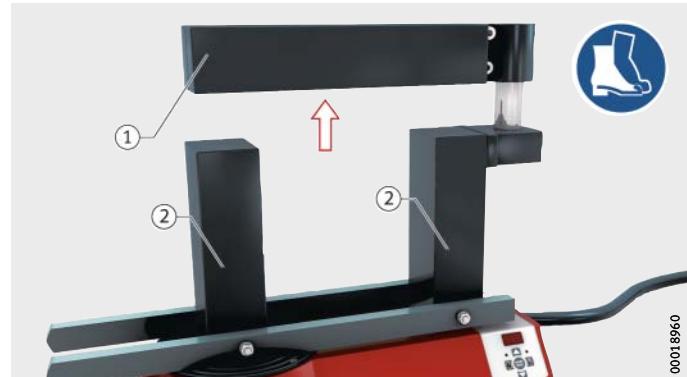
## Changing the slewing ledge

### Lifting off the slewing ledge

Before heating, the slewing ledge with the largest possible cross-section is used. When using a support ledge, the slewing ledge present is removed but a new slewing ledge is not put in place.

Lift off the slewing ledge, *Figure 18*:

- ▶ Switch off the heating device using the main switch.
- ▶ Lift the slewing ledge upwards off the locating stud.
- ▶ Place the slewing ledge on the work surface next to the heating device.



*Figure 18*  
Lifting off the slewing ledge

### Locating the slewing ledge

Locate the slewing ledge, *Figure 19*:

- ▶ Lift the slewing ledge upwards off the locating stud.
- ▶ Position the slewing ledge on the U-shaped core.

The slewing ledge has been changed.



*Figure 19*  
Locating the slewing ledge

## Positioning of rolling bearings

### Positioning of rolling bearing suspended on slewing ledge

The rolling bearing can be positioned either suspended or lying flat.

Positioning of rolling bearings, *Figure 20*:

#### **⚠ WARNING**

Risk of injury due to tilting of heating device and falling rolling bearing.

In the case of heavy rolling bearings, use a suitable carrying sling and a suitable lifting device, then slide the rolling bearing to the end of the slewing ledge during positioning. 

#### **NOTICE**

Damage to heating device due to overloading of the open slewing ledge.

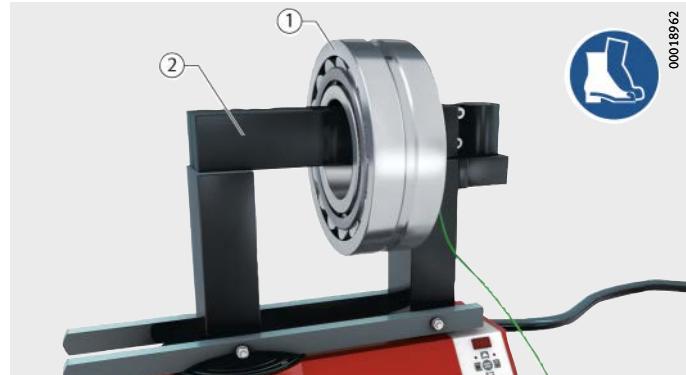
Observe the maximum mass for open slewing ledges, see section *Suitable rolling bearings*, page 33. 

- ▶ Rotate the slewing ledge away from the U-shaped core.
- ▶ Slide the rolling bearing onto the slewing ledge.
- ▶ Rotate the slewing ledge with the rolling bearing until the slewing ledge is fully located on the U-shaped core.
- ▶ Lower the rolling bearing.
- ▶ Remove the carrying sling.

The rolling bearing is positioned suspended.

① Rolling bearing  
② Slewing ledge

*Figure 20*  
Rolling bearing suspended,  
slewing ledge



## HEATER40, HEATER150, HEATER300

### Positioning of rolling bearing suspended on support ledge

Positioning the rolling bearing on the HEATER40, *Figure 21*:

#### NOTICE

Damage to heating device due to overloading of the support ledge.

Observe the maximum mass of 10 kg. ◀

- ▶ Remove the slewing ledge.
- ▶ Slide the rolling bearing onto the support ledge.
- ▶ Lay the support ledge with the rolling bearing on the U-shaped core.

The rolling bearing is positioned suspended.



*Figure 21*  
Rolling bearing suspended,  
support ledge

### Positioning the rolling bearing lying flat

Positioning of rolling bearings, *Figure 22*:

- ▶ Rotate the slewing ledge away from the U-shaped core.
- ▶ Lay the rolling bearing on the support rails.
- ▶ Rotate the slewing ledge so that it is fully located on the U-shaped core.

The rolling bearing is positioned lying flat.



*Figure 22*  
Rolling bearing lying flat

## Temperature sensor

If the operating mode of the heating device is temperature control or ramp control, the temperature sensor must be attached before a heating operation. The heating device will indicate an error if the temperature sensor is not detected.

### Connecting and attaching the temperature sensor

Connecting and attaching the temperature sensor, *Figure 23*:

#### **NOTICE**

Destruction of the temperature sensor through heating of the cable, leading to melting of the cable sheathing.

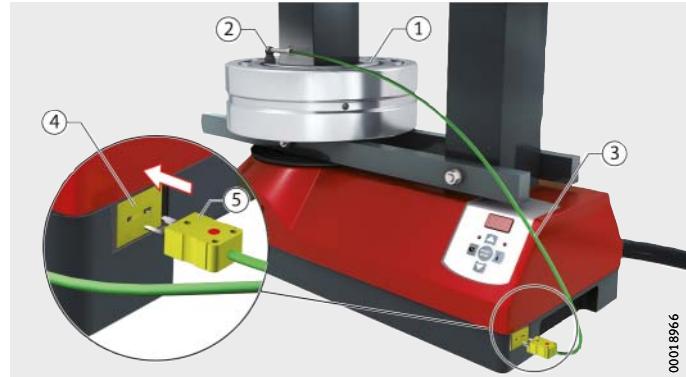
Feed the temperature sensor cable around the U-shaped core. ◀

- ▶ Insert the plug of the temperature sensor with the red mark facing upwards in the yellow socket.
- ▶ Place the magnetic temperature sensor on the end face of the inner ring that is free from grease and oil.

The temperature sensor is connected and attached and the temperature can be measured.

- ① Inner ring of rolling bearing
- ② Temperature sensor
- ③ Cable of temperature sensor
- ④ Socket for temperature sensor
- ⑤ Plug of temperature sensor

*Figure 23*  
Connecting and attaching the temperature sensor

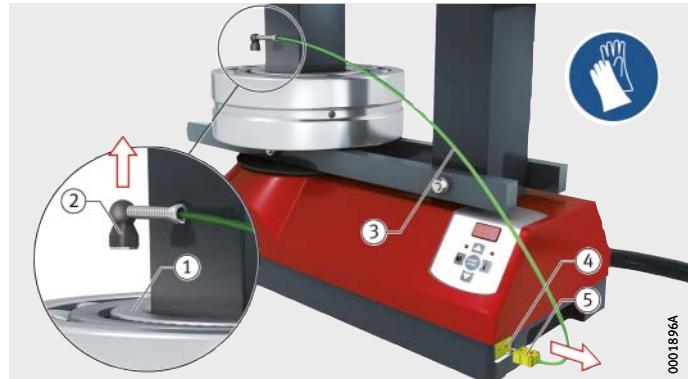


## HEATER40, HEATER150, HEATER300

### Detaching the temperature sensor

Detaching the temperature sensor, *Figure 24*:

- ▶ Grip the temperature sensor by the black sheathing.
- ▶ Remove the temperature sensor from the end face of the inner ring.
- ▶ Where necessary, pull the plug of the temperature sensor out of the yellow socket.



*Figure 24*

Detaching the temperature sensor

- ① Inner ring of rolling bearing
- ② Temperature sensor
- ③ Cable of temperature sensor
- ④ Socket for temperature sensor
- ⑤ Plug of temperature sensor

## Removal of rolling bearings

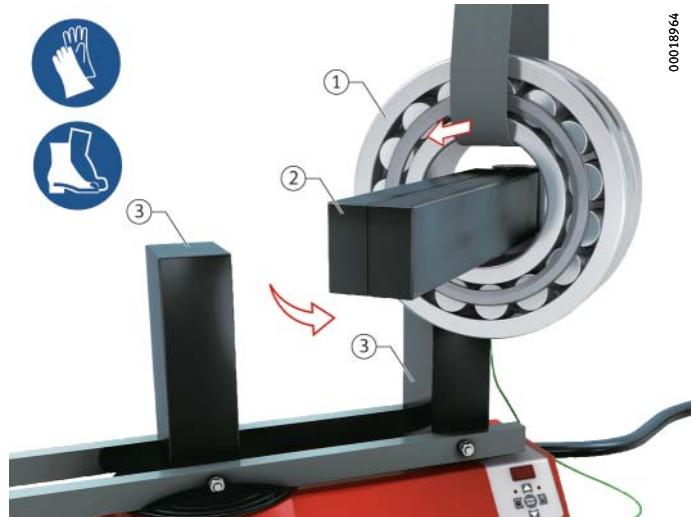
### Removal of suspended rolling bearing from slewing ledge

Once the temperature sensor has been detached, the rolling bearing can be removed.

Removal of rolling bearings, *Figure 25*:

- ▶ Lift heavy rolling bearings by means of a carrying sling and suitable lifting device.
- ▶ Rotate the rolling bearing and slewing ledge away from the U-shaped core.
- ▶ Slide the rolling bearing off the slewing ledge.

The rolling bearing can now be mounted.



*Figure 25*  
Removal of suspended rolling bearing from slewing ledge

## HEATER40, HEATER150, HEATER300

### Removal of suspended rolling bearing from support ledge

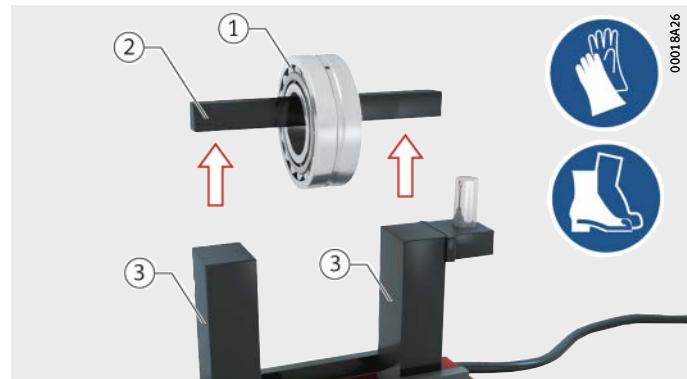
#### Removal of rolling bearings, *Figure 26*:

- ▶ Lift the rolling bearing and the support ledge together off the U-shaped core.
- ▶ Remove the support ledge from the rolling bearing and lay both down separately.

The rolling bearing can now be mounted.

- ① Rolling bearing
- ② Support ledge
- ③ U-shaped core

*Figure 26*  
Removal of suspended rolling bearing from support ledge



### Removing the rolling bearing lying flat

#### Removal of rolling bearings, *Figure 27*:

- ▶ Rotate the slewing ledge away from the U-shaped core.
- ▶ Remove the rolling bearing.

The rolling bearing can now be mounted.

- ① Rolling bearing
- ② Slewing ledge
- ③ U-shaped core

*Figure 27*  
Removing the rolling bearing lying flat



## Troubleshooting

A malfunction is indicated by a long buzzer tone and a flashing error number in the display. Once the malfunction has been eliminated, the heating device is ready for use again.

## Eliminating malfunctions

If a malfunction occurs, the heating device will switch itself off. Before the heating device is switched on again, the cause of the malfunction must first be identified and eliminated.

You can eliminate a malfunction as follows:

- ▶ Read off the error number on the display.
- ▶ Determine the cause of the malfunction, see *table*.
- ▶ Rectify the malfunction if you have authorisation to do so.
- ▶ Press the START/STOP key to cancel the error message.

The heating device can now be recommissioned.

## Error messages

Display	Error	Possible cause	Remedy
E01	The heating device does not detect the temperature sensor	The temperature sensor is not connected	Connect the temperature sensor
		The temperature sensor is incorrectly connected	Connect the temperature sensor correctly. <b>The red dot (on the plug) must face upwards</b>
		The temperature sensor has a broken cable	Use a new temperature sensor
E02	The specified temperature was not achieved in the specified time	The temperature sensor is incorrectly positioned	Attach the temperature sensor over its full surface to a flat area of the inner ring
		The rolling bearing is too heavy	Contact Customer Service Use a more powerful heating device
E04	The temperature of the coil or housing is too high	The temperature monitoring system has been triggered, the heating device has been switched off	Allow the heating device to cool down for 30 min. Use a more powerful heating device
E06	No zero-cross	The terminal connections to the circuit board are defective or the circuit board itself has a defect	Arrange for an electrically skilled person to change the electronic unit

If the defect cannot be eliminated, please contact Customer Service at Schaeffler Technologies AG & Co. KG.

## Maintenance

Before every use, a visual and functional inspection must be carried out. If necessary, maintenance must be carried out on the device.

## Maintenance plan

The maintenance items are stated in the maintenance plan, see *tables*.

### Before every use

Subassembly	Activity
Heating device	<p>Visual inspection:</p> <ul style="list-style-type: none"><li><input type="checkbox"/> Check the housing for damage</li><li><input type="checkbox"/> Check the plug and cable for damage to the insulation</li><li><input type="checkbox"/> Check that the support rails and slewing ledge or support ledge are present and free from damage</li><li><input type="checkbox"/> Check the function of the display</li></ul>

### As necessary

Subassembly	Activity
Heating device	<ul style="list-style-type: none"><li><input type="checkbox"/> Clean with a soft, dry cloth</li></ul>
Contact surfaces on the U-shaped core	<ul style="list-style-type: none"><li><input type="checkbox"/> Cleaning of contact surfaces</li><li><input type="checkbox"/> For optimum contact and to prevent corrosion, regularly grease with an acid-free grease, see label "Grease contact surfaces"</li></ul>

## Decommissioning

If the heating device will no longer be used regularly, it should be decommissioned.

## Temperature

When decommissioning the heating device, its temperature must be observed.

### NOTICE

Damage to or destruction of the cover due to contact with a hot heating device.

Only fit the cover to the heating device if the temperature of the heating device is less than +50 °C. 

Decommissioning:

- ▶ Switch off the heating device using the main switch.
- ▶ Disconnect the heating device from the voltage supply.
- ▶ Fit the cover to the heating device.

**Disposal**

The device can be returned to Schaeffler for disposal.

The heating device can be dismantled in order to dispose of the subassemblies separately.

The heating device may only be dismantled by an electrically skilled person.



**WARNING**

Electrocution due to sudden discharge of capacitors.

Before dismantling of the heating device, wait at least 24 h after disconnection from the voltage supply.◀



**WARNING**

Cutting injuries to the hands when working on sharp-edged components located in the interior of the heating device.

In dismantling, use cut-resistant safety gloves.◀

**Regulations**

Disposal must be carried out in accordance with locally applicable regulations.

# HEATER40, HEATER150, HEATER300

## Technical data and accessories

Technical data, standard accessories and special accessories, see *tables*.

### Technical data HEATER40 and HEATER40-115V-UL

Designation	HEATER40	HEATER40-115V-UL
Dimensions	340×204×295 mm	
Mass	26 kg	
Voltage supply	AC 230 V	AC 115 V
Frequency	50 Hz	60 Hz
Power consumption	3,6 kVA	1,7 kVA
Rated current	16 A	15 A
Residual magnetism, maximum	2 A/cm	
IP protection class	54	
Mains connection cable	3 pin, length 1,5 m, rigidly connected to heating device	
Mains connection plug	Safety contact plug to CEE-7	Three pin NEMA plug, type B

### Technical data HEATER40 and HEATER40-115V-UL

Component	Designation	Dimensions mm	d <sup>1)</sup> mm	Mass kg
Support ledge	HEATER40.LEDGE-20	14×14×280	20	0,4
Slewing ledge	HEATER40.LEDGE-45	30×30×280	45	2
	HEATER40.LEDGE-70	50×50×280	70	5,3
Temperature sensor	HEATER.SENSOR-1000MM	–	–	0,05
Remote control	HEATER.REMOTE-CONTROL	–	–	0,15
Grease	ARCANOL-MULTI3-250G	–	–	0,25
Gloves	GLOVE-PRO-TEMP	–	–	0,15
Cover	HEATER40.COVER	–	–	–

<sup>1)</sup> Suitable for rolling bearings with minimum inside diameter as stated.

### Special accessories HEATER40 and HEATER40-115V-UL

Component	Designation	Dimensions mm	d <sup>1)</sup> mm	Mass kg
Support ledge	HEATER40.LEDGE-15	10×10×280	15	0,25
Slewing ledge	HEATER40.LEDGE-35	25×25×280	35	1,4
	HEATER40.LEDGE-60	40×40×280	60	3,4

<sup>1)</sup> Suitable for rolling bearings with minimum inside diameter as stated.

**Technical data  
HEATER150 and  
HEATER150-460V-UL**

Designation	HEATER150	HEATER150-460V-UL
Dimensions	500×290×480 mm	
Mass	70 kg	
Voltage supply	AC 400 V	AC 460 V
Frequency	50 Hz	60 Hz
Power consumption	8 kVA	9,2 kVA
Rated current	20 A	20 A
Residual magnetism, maximum	2 A/cm	
IP protection class	54	
Mains connection cable	3 pin, length 1,5 m, rigidly connected to heating device	
Mains connection plug	Three-phase plug to CEE-3P+N+E-32A	Three pin NEMA plug, type B

**Standard accessories  
HEATER150 and  
HEATER150-460V-UL**

Component	Designation	Dimensions mm	d <sup>1)</sup> mm	Mass kg
Slewing ledge	<b>HEATER150.LEDGE-45</b>	30×30×350	45	3,2
	<b>HEATER150.LEDGE-70</b>	50×50×350	70	7,5
	<b>HEATER150.LEDGE-100</b>	70×70×350	100	13
Temperature sensor	<b>HEATER.SENSOR-1000MM</b>	–	–	0,05
Remote control	<b>HEATER.REMOTE-CONTROL</b>	–	–	0,15
Grease	<b>ARCANOL-MULTI3-250G</b>	–	–	0,25
Gloves	<b>GLOVE-PRO-TEMP</b>	–	–	0,15
Cover	<b>HEATER150.COVER</b>	–	–	–

1) Suitable for rolling bearings with minimum inside diameter as stated.

**Special accessories  
HEATER150 and  
HEATER150-460V-UL**

Component	Designation	Dimensions mm	d <sup>1)</sup> mm	Mass kg
Support ledge	<b>HEATER150.LEDGE-20</b>	14×14×350	20	1,1
Slewing ledge	<b>HEATER150.LEDGE-30</b>	20×20×350	30	1,2
	<b>HEATER150.LEDGE-60</b>	40×40×350	60	4,2
	<b>HEATER150.LEDGE-85</b>	60×60×350	85	9,5

1) Suitable for rolling bearings with minimum inside diameter as stated.

# HEATER40, HEATER150, HEATER300

**Technical data  
HEATER300 and  
HEATER300-460V-UL**

Designation	HEATER300	HEATER300-460V-UL
Dimensions	1045×310×570 mm	
Mass	154 kg	
Voltage supply	AC 400 V	AC 460 V
Frequency	50 Hz	60 Hz
Power consumption	12 kVA	14,7 kVA
Rated current	32 A	32 A
Residual magnetism, maximum	2 A/cm	
IP protection class	54	
Mains connection cable	3 pin, length 1,5 m, rigidly connected to heating device	
Mains connection plug	Three-phase plug to CEE-3P+N+E-32A	Three pin NEMA plug, type B

**Standard accessories  
HEATER300 and  
HEATER300-460V-UL**

Component	Designation	Dimensions mm	d <sup>1)</sup> mm	Mass kg
Slewing ledge	<b>HEATER300.LEDGE-60</b>	40×40×490	60	7
	<b>HEATER300.LEDGE-85</b>	60×60×490	85	14
	<b>HEATER300.LEDGE-115</b>	80×80×490	115	32
Temperature sensor	<b>HEATER.SENSOR-1000MM</b>	–	–	0,05
Remote control	<b>HEATER.REMOTE-CONTROL</b>	–	–	0,15
Grease	<b>ARCANOL-MULTI3-250G</b>	–	–	0,25
Gloves	<b>GLOVE-PRO-TEMP</b>	–	–	0,15
Cover	<b>HEATER300.COVER</b>	–	–	–

<sup>1)</sup> Suitable for rolling bearings with minimum inside diameter as stated.

**Special accessories  
HEATER300 and  
HEATER300-460V-UL**

Component	Designation	Dimensions mm	d <sup>1)</sup> mm	Mass kg
Slewing ledge	<b>HEATER300.LEDGE-30</b>	20×20×490	30	2,7
	<b>HEATER300.LEDGE-45</b>	30×30×490	45	4,5
	<b>HEATER300.LEDGE-70</b>	50×50×490	70	10
	<b>HEATER300.LEDGE-100</b>	70×70×490	100	19
Trolley	<b>HEATER300.TROLLEY</b>	–	–	60

<sup>1)</sup> Suitable for rolling bearings with minimum inside diameter as stated.

**Original accessories**

Only use FAG original accessories.

## Appendix

This appendix contains the Declaration of Conformity for heating devices HEATER40, HEATER150 and HEATER300 and information on the UL certificates for the heating devices heater 40 us (structurally identical to HEATER40-115V-UL), HEATER150-460V-UL and HEATER300-460V-UL.

## EC Declaration of Conformity

Declaration of Conformity for heating devices HEATER40, HEATER150 and HEATER300, *Figure 28*.

  
en

**EC Declaration of Conformity**

in accordance with Low Voltage Directive 2006/95/EC  
and EMC Directive 2004/108/EC

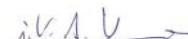
We hereby declare that the product described below is in conformity with the applicable health and safety requirements of the EC Directive in terms of its design and type and in the execution we have brought into circulation.  
This declaration shall cease to be valid if any modification is made to the product without our agreement.

Product description: Induction heating device  
Product name: HEATER  
Type: 40; 150; 300

**Applicable harmonised standards:**

IEC 335-1 (EN60335)	Classification 1 (industrial environments)
IEC 864-1	Category 1 (industrial environments)
EN 55011:2009	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement
EN 61000-3-2:2006	Electromagnetic compatibility (EMC) - Part 3-2
EN 61000-3-3:2008	Electromagnetic compatibility (EMC) - Part 3-3
	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments

**Signatures:**

  
Dipl. Ing. Armin Kempkes  
Vice President Services Industrial Aftermarket  
Schaeffler Group Industrial

  
Paul Koeniger  
Product Manager

Date:  
Schweinfurt, 21.09.2011

This declaration certifies conformity with the stated directives but does not represent a guarantee of characteristics.  
The safety guidelines in the user manual must be observed.

Schaeffler Technologies GmbH & Co. KG • Georg-Schafer-Straße 30 • D-97421 Schweinfurt • Tel.: +49 9407 9149-99

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*Figure 28*  
Declaration of Conformity

## HEATER40, HEATER150, HEATER300

### UL certificates

A UL certificate exists for each device, see *table*.

#### Allocation

Device	Certificate	Standard
heater 40 us	US 72110394 01	UL 499:2005 R11.09
FAG HEATER 150-460V-UL	US 72101830 03	UL 499:2005 R11.09
FAG HEATER 300-460V-UL	CU 72131329 01	UL 499:2005 R11.09 CAN/CSA C22.2.14-10







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